UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/634,277	08/05/2003	David Alan Burton	SJO920020111US1	7126

45216 7590 05/04/2006

KUNZLER & ASSOCIATES
8 EAST BROADWAY
SUITE 600
SALT LAKE CITY, UT 84111

EXAMINER	
DARE, RYAN A	

ART UNIT	PAPER NUMBER
2186	

DATE MAILED: 05/04/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/634,277	BURTON ET AL.	
	Examiner	Art Unit	
	Ryan Dare	2186	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on *21 February 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-14,16,18-23,25,26 and 28* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-14,16,18-23,25,26 and 28* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-14, 16, 18-23, 25-26, and 28 are pending in the application and have been examined.

Claim Rejections - 35 USC § 101

1. 35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

2. Claims 1-5, 26 and 28 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter. In the specification on page 7, line 22, it is disclosed that a computer readable storage medium can be an electronic signal on a system or network.

Claims that recite nothing but the physical characteristics of a form of energy, such as a frequency, voltage, or the strength of a magnetic field, define energy or magnetism, per se, and as such are nonstatutory natural phenomena. O'Reilly, 56 U.S. (15 How.) at 112-14. Moreover, it does not appear that a claim reciting a signal encoded with functional descriptive material falls within any of the categories of patentable subject matter set forth in § 101.

First, a claimed signal is clearly not a "process" under § 101 because it is not a series of steps. The other three § 101 classes of machine, compositions of matter and manufactures "relate to structural entities and can be grouped as 'product' claims in

order to contrast them with process claims." 1 D. Chisum, Patents § 1.02 (1994). The three product classes have traditionally required physical structure or material.

"The term machine includes every mechanical device or combination of mechanical device or combination of mechanical powers and devices to perform some function and produce a certain effect or result." Corning v. Burden, 56 U.S. (15 How.) 252, 267 (1854). A modern definition of machine would no doubt include electronic devices which perform functions. Indeed, devices such as flip-flops and computers are referred to in computer science as sequential machines. A claimed signal has no physical structure, does not itself perform any useful, concrete and tangible result and, thus, does not fit within the definition of a machine.

A "composition of matter" "covers all compositions of two or more substances and includes all composite articles, whether they be results of chemical union, or of mechanical mixture, or whether they be gases, fluids, powders or solids." Shell Development Co. v. Watson, 149 F. Supp. 279, 280, 113 USPQ 265, 266 (D.D.C. 1957), aff'd, 252 F.2d 861, 116 USPQ 428 (D.C. Cir. 1958). A claimed signal is not matter, but a form of energy, and therefore is not a composition of matter.

The Supreme Court has read the term "manufacture" in accordance with its dictionary definition to mean "the production of articles for use from raw or prepared materials by giving to these materials new forms, qualities, properties, or combinations, whether by hand-labor or by machinery." Diamond v. Chakrabarty, 447 U.S. 303, 308, 206 USPQ 193, 196-97 (1980) (quoting American Fruit Growers, Inc. v. Brogdex Co., 283 U.S. 1, 11, 8 USPQ 131, 133 (1931), which, in turn, quotes the Century Dictionary).

Other courts have applied similar definitions. See American Disappearing Bed Co. v. Arnaelsteen, 182 F. 324, 325 (9th Cir. 1910), cert. denied, 220 U.S. 622 (1911). These definitions require physical substance, which a claimed signal does not have. Congress can be presumed to be aware of an administrative or judicial interpretation of a statute and to adopt that interpretation when it re-enacts a statute without change. Lorillard v. Pons, 434 U.S. 575, 580 (1978). Thus, Congress must be presumed to have been aware of the interpretation of manufacture in American Fruit Growers when it passed the 1952 Patent Act.

A manufacture is also defined as the residual class of product. 1 Chisum, § 1.02[3] (citing W. Robinson, The Law of Patents for Useful Inventions 270 (1890)).

A product is a tangible physical article or object, some form of matter, which a signal is not. That the other two product classes, machine and composition of matter, require physical matter is evidence that a manufacture was also intended to require physical matter. A signal, a form of energy, does not fall within either of the two definitions of manufacture. Thus, a signal does not fall within one of the four statutory classes of § 101.

3. Claims 1-14, 16, 18-23, 25-26 and 28 are rejected under 35 U.S.C. 101 because they do not appear to provide a useful, concrete and tangible result. For example, independent claims 1, 6, 13, 16, 23 and 26 merely recite the components of a snapshot set and fail to claim an invention that produces a useful, concrete and tangible result.

4. Similarly, claims 1-14, 16, 18-23, 25-26 and 28 are rejected under 35 U.S.C. 101 because they appear to be directed towards a data structure, per se.

Descriptive material can be characterized as either "functional descriptive material" or "nonfunctional descriptive material." In this context, "functional descriptive material" consists of data structures and computer programs which impart functionality when employed as a computer component. (The definition of "data structure" is "a physical or logical relationship among data elements, designed to support specific data manipulation functions." The New IEEE Standard Dictionary of Electrical and Electronics Terms 308 (5th ed. 1993).) "Nonfunctional descriptive material" includes but is not limited to music, literary works and a compilation or mere arrangement of data.

Both types of "descriptive material" are nonstatutory when claimed as descriptive material per se. When nonfunctional descriptive material is recorded on some computer-readable medium, in a computer or on an electromagnetic carrier signal, it is not statutory since no requisite functionality is present to satisfy the practical application requirement. Merely claiming nonfunctional descriptive material, i.e., abstract ideas, stored in a computer-readable medium, in a computer, on an electromagnetic carrier signal does not make it statutory. See Diehr, 450 U.S. at 185-86, 209 USPQ at 8 (noting that the claims for an algorithm in Benson were unpatentable as abstract ideas because "[t]he sole practical application of the algorithm was in connection with the programming of a general purpose computer."). Such a result would exalt form over substance. In re Sarkar, 588 F.2d 1330, 1333, 200 USPQ 132, 137 (CCPA 1978) ("[E]ach invention must be evaluated as claimed; yet semantogenic considerations preclude a determination based solely on words appearing in the claims. In the final analysis under § 101, the claimed invention, as a whole, must be evaluated for what it is.") (quoted with approval

in Abele, 684 F.2d at 907, 214 USPQ at 687). See also In re Johnson, 589 F.2d 1070, 1077, 200 USPQ 199, 206 (CCPA 1978) ("form of the claim is often an exercise in drafting").

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

7. Claim 1 is rejected under 35 U.S.C. 103(a) as being unpatentable over Berkowitz et al., US Patent 6,498,038, in view of Kodama et al., US PG Pub, 2004/0254964.

8. With respect to claim 1, Berkowitz et al. teach a computer readable storage medium comprising computer readable program code containing a programming interface for managing and conducting fast replication operations, in figure 1, where the computer readable storage medium is memory 104, which contains the program modules 106, the programming interface comprising:

an add to snapshot set function configured to add snapshot criteria to a snapshot set, the snapshot criteria comprising a source volume indicator data field, a target volume indicator data field, a partial volume indicator data field, and a source extents indicator data field, in fig. 4, step 407 (AddComponents), col. 9, lines 58-61, and col. 8, lines 22-38, where it is disclosed that the backup components file contains the components that are to be backed up which includes where to find the data (source volume and extents); and

an execute snapshot set function configured to initiate a plurality of fast replications operations as specified by the snapshot set, in fig. 4, step 411 (DoSnapshotSet) and col. 10, lines 6-18.

Berkowitz fails to teach an auto-select indicator. Kodama et al. teaches a replication system where the target volume can be selected either automatically or chosen by a user, thereby teaching an auto-select indicator, in par. 83.

9. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the data replication system of Berkowitz et al. with the data replication system of Kodama et al. in order to automatically select target volumes,

10. Claims 2-14, 16, 18-23, 25-26 and 28 are rejected under 35 U.S.C. 103(a) as being unpatentable over Berkowitz et al. and Kodama et al. as applied to claims 1 and 28 above, in view of Armangau et al., US 6,934,822.

11. With respect to claim 2, Berkowitz et al. and Kodama et al. teach all other limitations of the parent claim, but fail to teach a background copy indicator field. Kodama et al. teach the computer readable storage medium of claim 1, wherein the

snapshot criteria further comprises a redundancy level indicator data field, in par. 69. Armangau et al. teach a background copy indicator in col. 16, lines 19-44.

12. It would have been obvious to one of ordinary skill in the art at the time the invention was made, to modify the data replication system of Berkowitz et al. and Kodama et al. by performing the replication process in the background as taught by Armangau et al. in order to make efficient data replication, as taught by Armangau et al. in col. 15, lines 54-56.

13. With respect to claim 3, Berkowitz et al. teach the computer readable storage medium of claim 1, wherein the programming interface further comprises:

a create snapshot set function configured to create a snapshot set, in fig. 4, step 407 (StartSnapshotSet) and col. 9, lines 53-55.

a delete snapshot set function configured to delete a specified snapshot set, in fig. 4, step 431 and col. 10, lines 10-12.

14. With respect to claim 4, Berkowitz et al. teach the computer readable storage medium of claim 1, wherein the programming interface further comprises:

a remove from snapshot set function configured to delete specified snapshot criteria from the snapshot set, in col. 10, lines 51-54; and

a terminate snapshot set function configured to terminate the plurality of fast replications operations specified by the snapshot set, in col. 10, lines 22-23.

15. With respect to claim 5, Berkowitz et al. teach the computer readable storage medium of claim 1, wherein the programming interface further comprises a get snapshot

set function configured to provide information regarding a specified snapshot set, in fig. 4, step 425 (GetDeviceObject) and in col. 10, lines 32-40.

16. With respect to claims 6-12, Applicant claims an apparatus that corresponds to the computer readable storage medium of claims 1-5 and is therefore rejected using similar logic.

17. With respect to claim 13, Applicant claims an apparatus that contains the means for the apparatus of claim 6 and 7 and is therefore rejected using similar logic.

18. With respect to claim 14, Berkowitz et al. teach the apparatus of claim 13, further comprising:

means for managing a list of controllers associated with the snapshot set, in fig. 2, Providers 215, and described in col. 4, lines 11-52;

means for creating the snapshot set, in fig. 4, step 407 (StartSnapshotSet) and col. 9, lines 53-55;

means for deleting a specified snapshot set, in fig. 4, step 431 and col. 10, lines 10-12;

means for removing specified snapshot criteria from the snapshot set, in col. 10, lines 51-54;

means for terminating the plurality of fast replications operations specified by the snapshot set, in col. 10, lines 22-23; and

means for providing information regarding a specified snapshot set, in fig. 4, step 425 (GetDeviceObject) and in col. 10, lines 32-40.

19. With respect to claim 16, Applicant claims the method that corresponds to the computer readable storage medium of claims 1 and 2, and is therefore rejected using similar logic.

20. With respect to claim 18, Berkowitz et al. teach the method of claim 16, further comprising conducting an operation selected from the group consisting of:

creating the snapshot set, in fig. 4, step 407 (StartSnapshotSet) and col. 9, lines 53-55;

deleting a specified snapshot set means for deleting a specified snapshot set, in fig. 4, step 431 and col. 10, lines 10-12;

providing information regarding a specified snapshot set, in fig. 4, step 425 (GetDeviceObject) and in col. 10, lines 32-40;

deleting specified snapshot criteria from the snapshot set, in fig. 4, step 431 and col. 10, lines 10-12; and

terminating the plurality of fast replications operations specified by the snapshot set, in col. 10, lines 22-23.

21. With respect to claim 19, Berkowitz et al. teach the method of claim 18, wherein adding snapshot criteria to a snapshot set is conducted using an API, in col. 4, lines 2-5.

22. With respect to claim 20, Kodama et al. teach the method of claim 16, wherein adding snapshot criteria to a snapshot set and initiating a plurality of fast replication operations as specified by the snapshot set are conducted across multiple volumes and multiple controllers, in par. 89.

23. With respect to claim 21, Kodama et al. teach the method of claim 16, further comprising managing a list of controllers associated with the snapshot set, in par. 67.

24. With respect to claim 22, Berkowitz et al. teach the method of claim 16, further comprising managing a list of controllers associated with the snapshot set, in fig. 2, Providers 215, and described in col. 4, lines 11-52.

25. With respect to claim 23, Berkowitz et al. teach a system for managing and conducting fast replication operations, the system comprising:

a storage volume configured to store data, in fig. 2, backup media 230.

at least one storage controller configured to manage the storage volumes, in fig. 2, Providers 215, and described in col. 4, lines 11-52.

at least one storage controller further configured to add snapshot criteria to a snapshot set and initiate a plurality of fast replications operations as specified by the snapshot set, in fig. 2, Providers 215, and described in col. 4, lines 11-52..

Berkowitz et al. fail to teach that the storage device can be a plurality of storage volumes. Kodama et al. teach that the backup storage device can be a plurality of storage volumes in par. 89

26. With respect to claim 25, Berkowitz et al. teach the system of claim 23, wherein the at least one storage controller is further configured to:

manage a list of controllers associated with the snapshot set, in fig. 2, Providers 215, and described in col. 4, lines 11-52;

remove specified snapshot criteria from the snapshot set, in col. 10, lines 51-54;

terminate the plurality of fast replications operations specified by the snapshot set, in col. 10, lines 22-23; and

provide information regarding a specified snapshot set, in fig. 4, step 425 (GetDeviceObject) and in col. 10, lines 32-40.

27. With respect to claim 26, Applicant claims a computer readable storage medium that is similar to claims 1 and 2 and is therefore rejected using similar logic.

28. With respect to claim 28, Berkowitz et al. teach the computer readable storage medium of claim 26, further comprising computer readable program code configured to:

manage a list of controllers associated with the snapshot set, in fig. 2, Providers 215, and described in col. 4, lines 11-52;

remove specified snapshot criteria from the snapshot set, in col. 10, lines 51-54;

terminate the plurality of fast replications operations specified by the snapshot set, in col. 10, lines 22-23; and

provide information regarding a specified snapshot set, in fig. 4, step 425 (GetDeviceObject) and in col. 10, lines 32-40.

Response to Arguments

29. Applicant's arguments with respect to claims 1-14, 16, 18-23, 25-26 have been considered but are moot in view of the new ground(s) of rejection.

30. Claims 1-5 stand rejected under 35. U.S.C. 101 for the reasons listed above.

Conclusion

31. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

32. The prior art made of record on form PTO-892 and not relied upon is considered pertinent to applicant's disclosure. Applicant is required under 37 C.F.R. § 1.111(c) to consider these references fully when responding to this action. The documents cited therein teach similar backup storage systems.

33. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Ryan Dare whose telephone number is (571)272-4069. The examiner can normally be reached on Mon-Fri 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matt Kim can be reached on (571)272-4182. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Ryan A. Dare
May 1, 2006

MATTHEW KIM
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2100